This listing of claims will replace all prior versions, and listings, of claims in

the application:

1. (Currently Amended) A graded index fiber comprising:

a drawn and fused preform comprising a plurality of low index rods, each having

only a single refractive index, and at least one high index rod, having only a single

refractive index, arranged in a predetermined pattern, the drawn and fused perform

preform having first and second ends, wherein the drawn and fused perform

preform is configured so that a mode of light transmitted from the first end to the

second end is substantially maintained.

2. (Original) The graded index fiber of claim 1, wherein the preform includes

intermediate index rods arranged in a predetermined pattern with the low index

rods and the at least one high index rod.

3. (Original) The graded index fiber of claim 2, wherein the intermediate

index rods have at least two different indices that are between an index of the low

index rods and an index of the at least one high index rod.

- 2 -

Applicant: Cryan et al. **Application No.:** 10/768,966

4. (Original) The graded index fiber of claim 1, wherein the low index and

high index rods are arranged using a statistical distribution to provide a desired

refractive index distribution.

5. (Original) The graded index fiber of claim 1, wherein the low index and

high index rods are glass.

6. (Original) The graded index fiber of claim 1, wherein the low index and

high index rods are formed of a polymer.

7. (Original) A graded index fiber array comprised of a plurality of graded

index fibers in accordance with claim 1, wherein each graded index fiber has a

center located at a specified position.

8. (Original) The graded index fiber array of claim 7, wherein the array

includes a plurality of graded index fibers arranged in an m x n array.

9. (Original) The graded index fiber array of claim 8, wherein the fused GRIN

fibers are located at a predetermined pitch.

10. (Currently amended) A method of making a graded index fiber having

first and second ends, comprising:

- 3 -

Applicant: Cryan et al.

Application No.: 10/768,966

arranging a plurality of low index rods, each having a single refractive index, and a

plurality of high index rods, each having a single index of refraction, in a

predetermined pattern to form a perform-preform, wherein the low index rods have

a common refractive index and the high index rods have a common refractive index;

heating the preform of the low index and high index rods;

drawing and fusing together the preform of low index and high index rods such

theat the relative position of the low index and high index rods is maintained,

wherein the drawn and fused perform preform forms the graded index fiber and is

configured such that a mode of light transmitted between the first and second ends

is generally maintained.

11. (Original) The method of claim 10 wherein the low index and high index

rods are arranged using a statistical distribution to provide a desired refractive

index distribution.

12. (canceled)

-4-